

# ARTURO VELASCO ALVAREZ, M.Sc.

CONSULTANT (HYDROLOGY)



## EDUCATION

Ph.D. Engineering, Simon Fraser University, Canada, (In Progress)  
M.Sc., Hydraulic Engineering and Environment EUR-ACE, Technical University of Valencia, Spain, 2017  
B.Eng., Agriculture Engineering, National University of Piura, Peru, 2012

## SUMMARY

Arturo Velasco has a B.Eng. in Agriculture Engineering and M.Sc. in Hydraulic Engineering and Environment with a specialization in water resources analysis. He has six years of professional and research experience in water resources and remote sensing environmental applications. Arturo joined Robertson GeoConsultants Inc. in 2021.

Arturo's experience includes the construction of numerical models as well as the interpretation and analysis of results in water-related projects. He also has experience in the processing and application of remote sensing techniques using spaceborne and airborne data for water resources analysis. Arturo specializes in:

- Hydrological and Hydraulic modeling
- Geographic Information Systems and Geospatial Analysis
- Remote Sensing (Optical and Radar sensors)

## PROFESSIONAL HISTORY

2021-present: Consultant (Hydrology), Robertson GeoConsultants Inc.  
2019-2021: Research Assistant, Simon Fraser University  
2017-2018: Water Resource Engineer, National Water Authority of Peru, Peru  
2014-2015: Water Resource Engineer, National Water Authority of Peru, Peru

## PROJECT EXPERIENCE

### WATER RESOURCE STUDIES

#### ***Los Bronces Mine, Chile (2022-present) for Anglo American Chile***

- Meteorological and hydrometric data gathering and analysis
- Hydrological spatial analysis for identification of catchments, drainage network, slope, aspect, among others hydrological spatial variables
- Developing of a semi-distributed hydrological model for the simulation of stream flows within the mine site using Raven Hydrological Framework and the HBV-EC model
- Developing and upgrading the water and load balance model to characterize current water quality within Los Bronces mine site to better understand natural and mine-related ARD contaminant sources to the environment

***Sandy Flat Mine Site, Australia (2021) for NT Department of Industry Tourism, and Trade (DITT)***

- Meteorological and hydrometric data gathering and analysis
- Hydrological spatial analysis for identification of catchments, drainage network, slope, aspect, among others hydrological spatial variables
- Developing of a lumped hydrological model for the simulation of stream flows within the mine site using the Australian Water Balance Model (AWBM)
- Developing a water and load balance model to characterize current water quality within Redbank mine site to better understand natural and mine-related ARD contaminant sources to the environment

***Delineation of the marginal lands around San Pedro de Vice wetland, Peru (2019) for United Nations Development Programme***

- Remote sensing analysis using optical images
- Hydrological analysis for the delineation of the marginal lands

***Hydraulic and hydrological model of the Zarumilla River, Peru (2018) for National Water Authority of Peru***

- Meteorological and hydrometric data gathering and analysis
- Developing of a hydrological model to simulated historical peak flows using HEC-HMS
- Developing of a hydraulic model (HEC-RAS) of the Zarumilla river for identification of flooded areas after El Niño Southern Oscillation event occurred in 2017

***Flood analysis Piura River, Peru (2017) for National Water Authority of Peru***

- Meteorological and hydrometric data gathering and analysis
- Fieldwork for the acquisition of airborne imagery for the construction of orthophotos and dem using photogrammetry techniques
- Analysis of airborne and spaceborne imagery for identification of flooded areas
- Flood analysis of the Piura River after El Niño Southern Oscillation flooding event in 2017

***Groundwater model of the Valle Medio y Bajo Piura, Peru (2014-2015) for National Water Authority of Peru***

- Analysis of groundwater records and meteorological data
- Analysis of remote sensing data for preparation of spatial variables
- Preparation and analysis of hydrodynamic pumping tests
- Preparation of geospatial data and layers for groundwater modelling

***Irrigation and Drainage, Peru (2014) for ECOACUICOLA SAC***

- Coordination and management of water supply channel network for shrimp farming
- Design and modelling of hydraulic structure for gauging flow (RBC flume)
- Technical assistance for environmental impact studies, water use license, and water quality assessments

**SELECTED PUBLICATIONS**

- Comparison of speckle noise filters on crop classification based on Sentinel-1 SAR time-series. IEEE Indian Geoscience and Remote Sensing Symposium (InGARSS), 2021.
- Semantic Segmentation of Land Use / Land Cover (Lu/Lc) types using F-CNNs on Multi-Sensor (Radar-IR-Optical) Image Data. IEEE IGARSS Brussels 2021. 978-1-6654-0369-6/21/\$31.00 ©2021 IEEE.
- Hydrogeological characterization and assessment of anthropic impacts in the Lower Piura Sub-basin Aquifer in Peru. Hydrogeology Journal, DOI: 10.1007/s10040-019-02027-7 HJ-2018-5590.R3